IBM

IBM Informix® Dynamic Server™ (IDS)
IDS Problem Determination Tutorial Series

Identifying and Solving Client Server Connectivity Problems

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Identifying and Solving Client Server Connectivity Problems

About this tutorial

Introduction

This tutorial will give you a fundamental understanding of IDS connectivity in a client/server environment. The tutorial will guide you through examples that will familiarize you with the tools and methods to determine the cause of connectivity problems.

To understand concepts in this tutorial, you should have a fundamental understanding of IDS and the parameters involved in making a connection to the database. If you are not the DBA then ask the Database Administrator for the configuration parameters you will need.

Setup

This tutorial shows examples from the Windows® operating system. All concepts and exercises can be completed against any IDS system.

In order to work through the examples in this tutorial, you should have completed the following tasks:

- Installed IDS and the Examples
- Installed CSDK or IConnect

Tutorial Conventions Used

When a tool or utility is first mentioned it will be shown in **bold** text.

All command statements and their output will be shown in a `monospaced` font.

Some examples will show specific command options, which may change over time, which will always be documented in IDS documentation.

About the author

You can reach Jason Looney-Haskett by locating his e-mail address in the IBM Global Directory at http://www.ibm.com/contact/employees/us .

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Understanding Your Environment

Section 1.1 Defining the systems involved

You must first understand your client-to-server relationship. Are you running a two tier or three tier relationship?   Is there a firewall between the client and server? What type of connectivity are you using to make a connection to the server: ODBC, OLEDB, JDBC, or ESQL/C?

Section 1.2 Tools to help determine where the problem lies

The best tools you can use to help diagnose any connectivity problem are provided with the ClientSDK and IConnect products. In particular, they are the Finderr, ILogin Demo, and DBPing programs.

Finderr Utility
Depending on the application, you may receive the accompanying error code and message text upon a failure to connect to your database. When this happens, use the Finderr utility to lookup the error code and the meaning for the code. This should always be your first step in troubleshooting any connectivity problem: understand the error code.

For example, if you failed to get a connection to the database and your application returns error code –952,   use the index button to search on error code –952 using the Finderr utility. It tells you that an invalid password was given for the user you tried to connect to the server with. See the Illustration below.
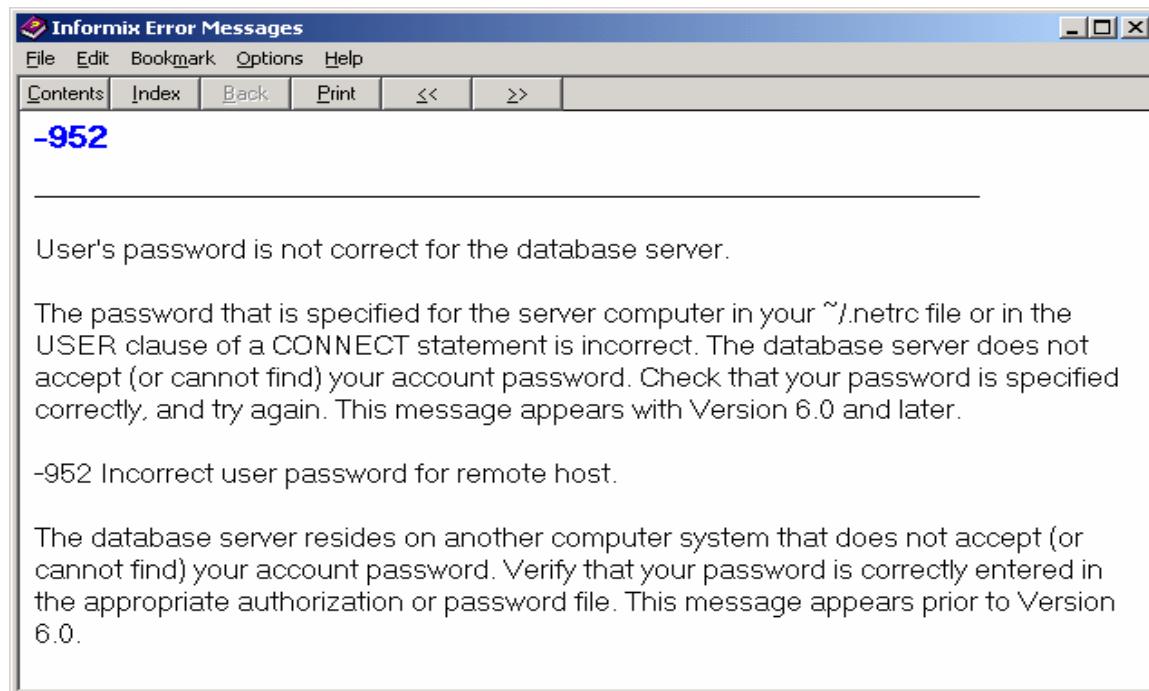
ILogin Demo
The ILogin demo allows you to test a connection to the demo database, stores7, using the native IBM Informix API. This is also good to use when having problems getting a connection from a different API. For example, if you tried configuring an ODBC Data source using the ODBC Administrator and you get an error, but no error code, you can confirm the properties for the connection are accurate by testing those same parameters in the ILogin Demo. If you get a connection through the ILogin demo you can be assured the parameters you have given are correct. Perhaps the cause of the connection problem is with the API, and not with the parameters you were providing. If it fails to connect, you will be given an Informix error code and message that will aid you in determining what the problem is. The ODBC Administrator may not have returned the entire error to you.

See the illustration below.
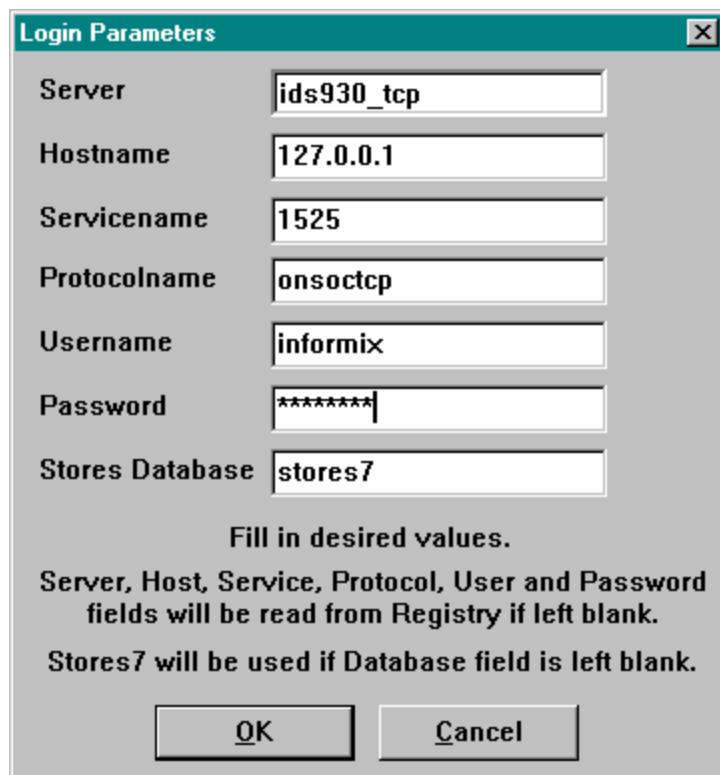
Note that the ILogin demo defaults to the stores7 demonstration database. Upon a successful connection it will open a window with a list of records from the customer table. You may connect to any other database, but upon a successful connection you will see a empty Customer window. So long as you do not receive any error code or message, you have made a successful connection.

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DBPing

DBPing is a new utility provided with SDK 2.81.   You may also use it to test and debug connection problems. It has the following tabs:

- TCPIP
- Native Connect
- COM+ (ODBC and OLE DB)
- ODBC (Native ODBC)
- JDBC

The TCPIP tab gives you the options to resolve:

- Service Name to Port #
- Port # to Service Name
- IP to Host Name
- Host Name to IP

See the Illustration below for an example of resolving a Service Name to Port number.

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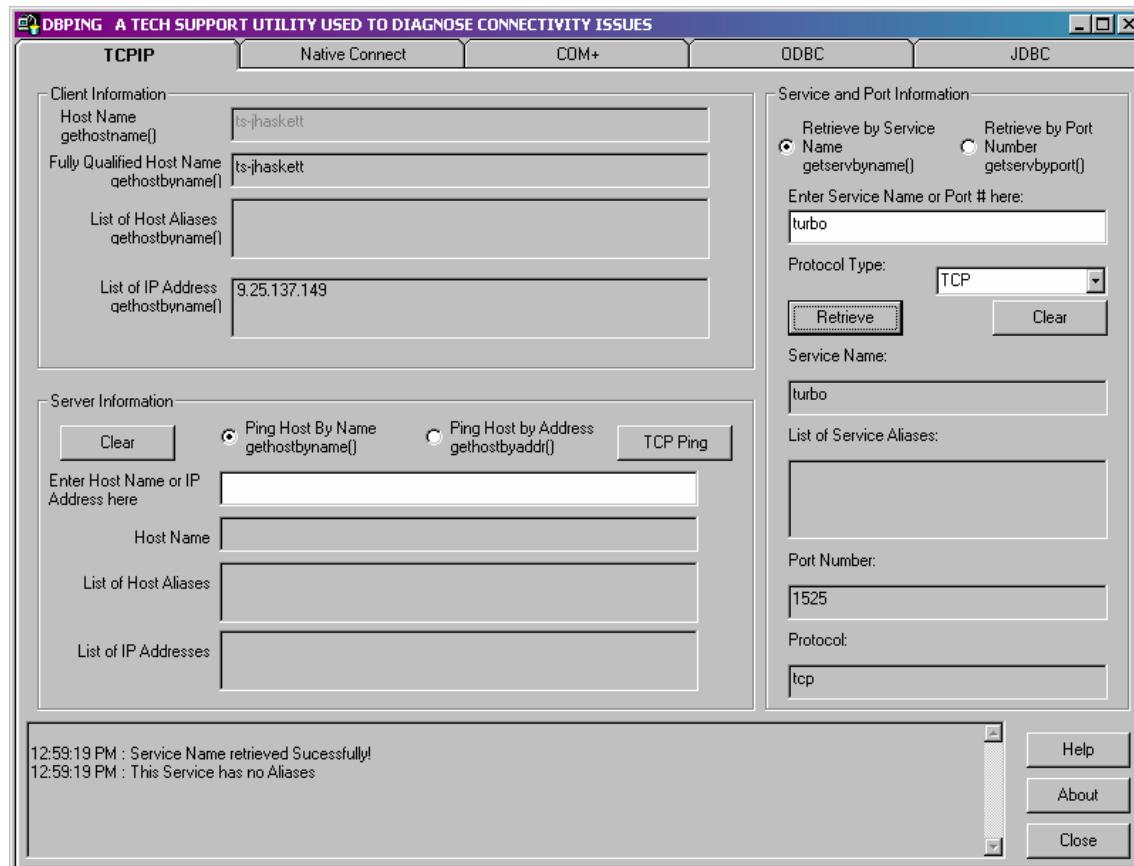
Similar to the ILogin demo, the Native Connect tab allows you to test connectivity using the Native API.

See the Illustration below
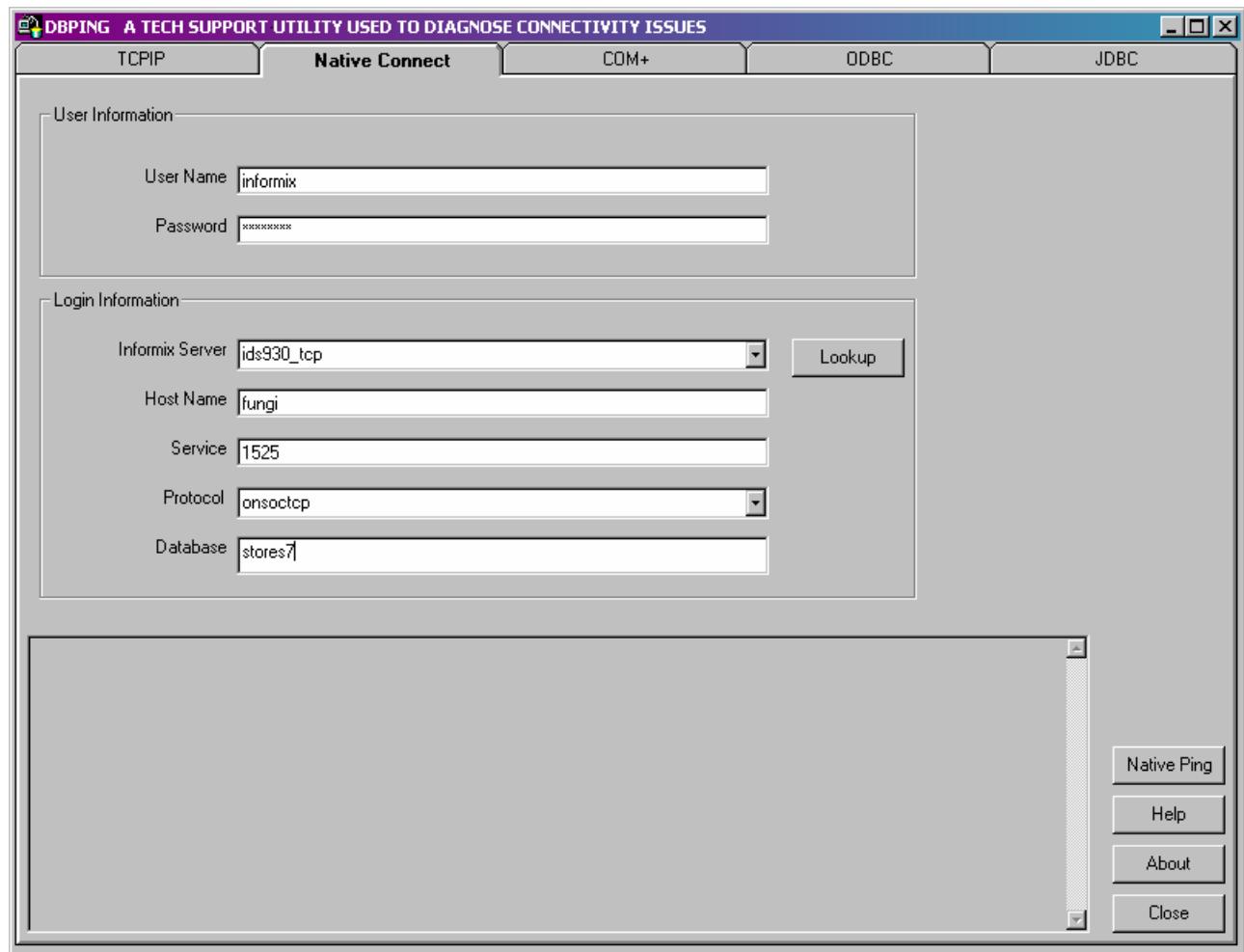
The remaining tabs, COM+, ODBC and JDBC, are to test a connection using those APIs. The COM+ tab uses Microsoft's ADO interface, which you can use to test both ODBC and OLEDB providers. The ODBC tab tests using native ODBC calls.

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Confirming your client/server configuration

Section 2.1 Setnet32 and SQLHOSTS

When connecting from a Windows client, you must use Setnet32 to set up the server's configuration. Your database administrator can provide you the sqlhosts entry information that you need in order to connect to the server. An entry in the server's sqlhosts file includes the following information, in this order:

- INFORMIXSERVER
- PROTOCOL
- HOST
- SERVICE
- OPTIONS

INFORMIXSERVER is the value you use for **Informix Server** in Setnet32.

PROTOCOL will help you determine if you connect via TCP or shared memory. To connect from a Windows client, the PROTOCOL in the server's sqlhosts file must be TCP.In Setnet32 enter "onsoctcp" in the Protocol field..

The third sqlhosts entry, HOST, is the hostname. This is the name of the host machine the Informix server resides on. Your client must be able to resolve the hostname in order to connect to the server. Use the DBPing utility previously discussed in this tutorial to test hostname resolution.

The fourth column in the sqlhosts entry, SERVICE, is the service name. This can either be the port number the server is listening for connections from, or a name that is referenced in the server's system services file, where the port number is resolved.

The last column in the sqlhosts entry, OPTIONS, is not always present. It is used to contain option information about the entry, such as the ER group that the entry belongs to or encryption/security configuration information.

To set up a new Informix server in Setnet32, first go to the Host Information tab.

See the following illustration for an example:
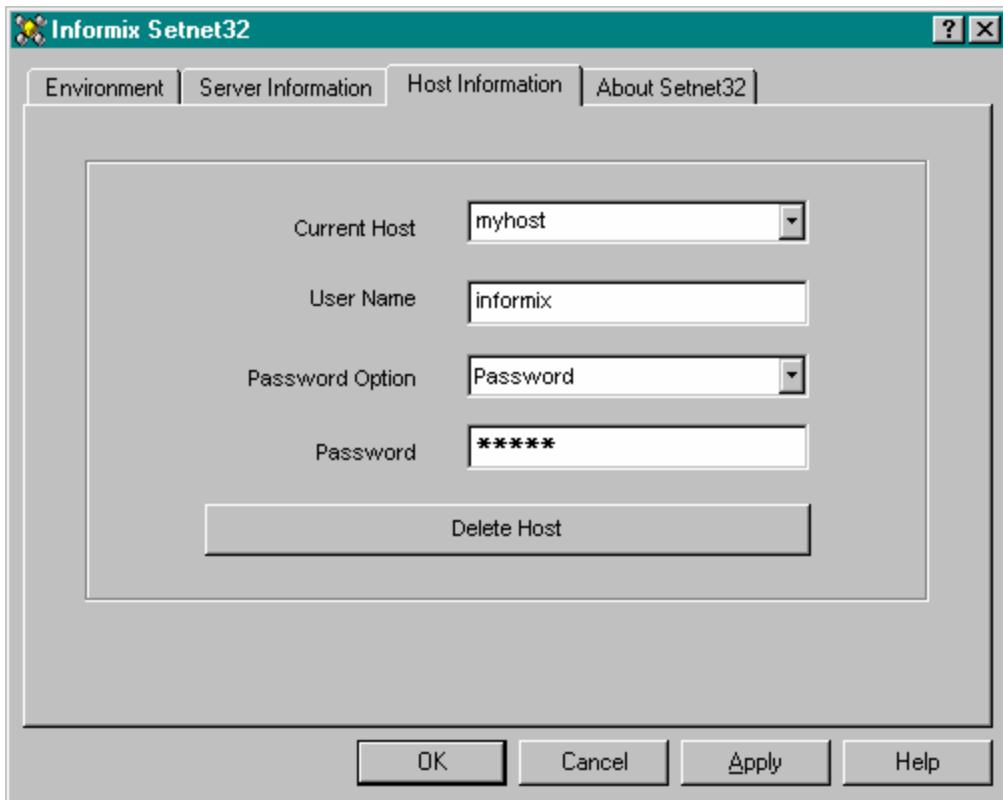
Once you have completed the fields on the Host Information tab, move on to the Server Information tab.
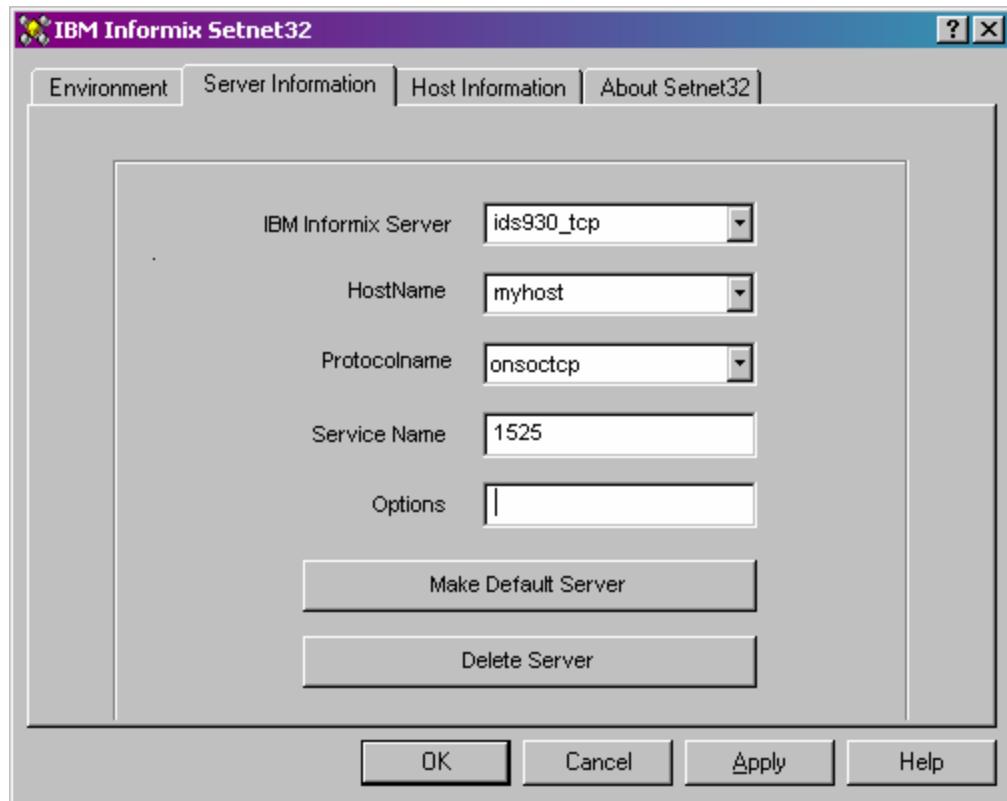
The most common mistakes are misspellings of parameters.. Check that you have spelled all connection parameters correctly. It is wise to test the connection using IP address and Port number versus Host and Service names.

If you are confident that all the connection parameters are accurate, according to your DBA and the server's SQLHOSTS file, but you still experience connection problems, check with the DBA to ensure that the server is configured correctly and accepting connections via TCP.

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Summary

What you should know

You should now be familiar with the tools and methods of resolving client/server connectivity problems.

For more information

For more information see the Informix Online Documentation of Connectivity/Client Products at http://www-3.ibm.com/software/data/informix/pubs/library/.